



STATE OF IDAHO
DIVISION OF
ENVIRONMENTAL QUALITY

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Philip E. Batt, Governor

July 13, 1998

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IDAHOW
OFFICE

Mr. A.N. Richardson
U.S. Department of Energy
Pittsburgh Naval Reactors Office
P.O. Box 2469
Idaho Falls, Idaho 83403-2469

RE: Review of the Draft Record of Decision for the Naval Reactors
Facility Operable Unit (OU) 8-8

Dear Mr. Richardson:

The Idaho Department of Health and Welfare/Division of Environmental Quality (IDHW/DEQ) has completed its review of the above-referenced document, and provides the enclosed list of comments. The comments include both technical and editorial concerns. We received the draft Record of Decision on May 29, 1998.

It is our hope that these comments can be resolved during the upcoming meeting on July 28, and the Record of Decision finalized for management review. If you have any questions regarding our review of the draft Record of Decision, do not hesitate to call me at (208) 373-0306.

Sincerely,

Margie English

Margie English
WAG 8 Manager
Remediation Bureau

ME/jc

cc: Keith Rose, EPA Region X
Dean Nygard, DEQ-Boise
Jeff Fromm, DEQ-Boise
File, DEQ-IF

Enclosure

IDHW/DEQ Technical Review Comments of the Naval Reactors Facility Draft Record of Decision for Operable Unit 8-8

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1) Declaration, Page iv, First Paragraph, Second to Last Sentence

The meaning of risk to public "welfare" is unclear. We recommend using language that is consistent with the National Contingency Plan such as "...*may present an unacceptable risk to human health and the environment.*"

2) Section 1.3, Page 3, First Paragraph, Third Sentence

Groundwater flow rates in the Snake River Plain Aquifer are as low as 1.5 foot per day at Test Area north. Please revise the estimated range.

3) Section 1.3, Page 3, First Complete Paragraph

Although the level of detail is acceptable, it is somewhat unnecessary for a Record of Decision, and could be deleted.

4) Section 1.4, Page 4, Last Paragraph, Last Sentence

The meaning of this sentence is unclear. Please provide more explanation in the text.

5) Section 2.1, Page 9, Figure 2

a) This figure is a good addition to the ROD. It provides a concise and very useful summary of the CERCLA evaluation process at the NRF.

b) Please correct the typographical error in the title (i.e., "CERCLA").

6) Section 3.1, General Comment

The text in this section commonly refers to "*qualitative risk*" and/or the "*qualitative risk assessment.*" Although these terms have been used with respect to the Track-1/Track-2 process, we believe they could be somewhat misleading to the uninformed reader. We suggest, therefore, modifying the text to highlight the evaluation process. For example, "*the qualitative risk is determined to be low*" could be replaced with "*risk is estimated to be low, based on the Track-1 evaluation.*"

7) Section 3.1.4, Page 15, First Paragraph, Second Sentence

Please delete "as" following "determined to be."

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8) Section 3.2.1, Page 16

We suggest that this background section include a discussion of the role of the S1W Retention Basins. These basins were used to store the radioactive effluent that was eventually released to the S1W land application sites.

9) Section 3.2.1, Page 17, Last Paragraph

- a) The term "longer lived radionuclides," while having a specific meaning with respect to the group of radionuclides present at NRF, is usually used in INEEL documents to designate radionuclides with longer half-lives than Cs-137, Co-60 and Sr-90. We suggest the third sentence to begin with *"The primary radionuclides with half-lives greater than five years released at NRF...."*
- b) Also, it is stated that tritium exhibits properties similar to water. This is not entirely clear; since tritium is hydrogen, it can certainly be part of a water molecule. It would be helpful to provide some additional detail as to why tritium would not be expected to be present, e.g., that tritium would be expected to have evaporated, leached, etc.

10) Section 3.2.2, Page 17

The screening levels are those levels that are used for screening. In this case, the screening levels are one-tenth of the low end of the risk range. Beginning with the fifth sentence, we suggest the following change for increased clarity: *"The preliminary list of COPCs were compared to risk-based screening levels. These screening levels are concentrations resulting in an estimated increased cancer risk of 1 in 10,000,000 (1E-7) or a hazard quotient of 0.1. Cancer risks and hazard quotients are discussed in more detail in Section 6.0."*

11) Section 3.2.2.1, Page 19

Please include a brief discussion of the risks posed by the arsenic and chromium.

12) Section 3.2.2.2, Pages 19-20

The text should discuss the uncertainty regarding contamination in the tile drain field. That is, attempts to locate the tile drain field using geophysics during the remedial investigation were inconclusive. Therefore, the soil samples collected during the RI may not have been located in the tile drain field. The text should indicate that, based on

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process knowledge of the discharge system, uncertainty regarding the actual location of the tile drain field, and sample results from the sump and surrounding soils, the agencies have made the presumption that soils at the tile drain field are contaminated with cesium-137 above risk based levels. In addition, the text should indicate that sampling within the L-shaped sump has confirmed the presence of COPCs above risk-based levels.

13) Section 3.2.2.6, Page 23, Second Paragraph

The text should explain in more detail that the purpose of the RI/FS sampling was not to characterize the basin soils/sediments. Rather, the purpose of the sampling was to define the lateral extent of contamination outside of the known discharge areas. This information would allow estimation of the volume of soils contaminated above risk-based levels.

14) Section 3.2.2.6, Page 23, Third Paragraph

We suggest that the paragraph conclude with a statement of risk associated with former perched zones.

15) Section 3.2.2.8, Page 24, First Paragraph, Fourth Sentence

Please delete "to" following "to discharging."

16) Section 3.2.2.8, Page 24, General Comment

The text should better explain the rationale behind the remedial decision for this site. The basins were used over a 20 year period, and they are known to have leaked for some of that time. Soil sampling from downstream sites within the same disposal system shows that where the radioactive effluent was applied to the land surface, site soils were contaminated to the extent that a clear unacceptable risk exists for cesium-137 and strontium-90 for a potential resident, 100 years in the future. These data suggest that fluids leaking from the retention basins would have been capable of contaminating site soils above acceptable risk-based levels. Therefore, the agencies made a presumptive decision that some soils beneath the retention basins are contaminated with cesium-137 and strontium-90 at concentrations which exceed risk-based levels.

17) Section 3.2.2.8, Page 24, Second Paragraph under Section Heading, First Sentence

Please change "were demolished" to "are demolished under decontamination and dispositioning activities associated with the remedial action at NRF."

18) Section 3.2.2.10, Page 26, First Paragraph, Last Sentence

Please insert "at" following "was detected . ."

19) Section 3.2.2.12, Pages 26-27

The text should discuss the groundwater pathway for this site.

20) Section 3.2.2.14, Page 27, Third Paragraph under Section Heading, Last Sentence

Please replace "noticeable" with "detected."

21) Section 3.2.2.17, Page 28

a) The text should better discuss the uncertainty associated with this site, and the rationale for including it in the remedial action. The case should be made that, based on process knowledge of the waste stream and soil sampling of the alternative disposal site (i.e., NRF-19 AIW leaching bed), the agencies believe that the 1995 sampling is not representative of all of the contamination present at this site. Therefore, the agencies presume that it is likely that cesium-137 and strontium-90 are present in soils immediately beneath the depth of the remaining pipe at concentrations that exceed acceptable risk based levels for a future resident.

b) Last Sentence: Please delete "potential."

22) Section 3.3, Page 29, NRF-83

It would be helpful to include a discussion of soil cleanup conducted during the ECF Hot Cell upgrade. It is our understanding that all contaminated soil other than that necessary to preserve the integrity of the trench was removed during this effort.

23) Section 4.0, Page 30, First Paragraph, First Sentence

Please delete the word "accurately," as this word has a well-defined scientific meaning that is not appropriate in this context.

24) Section 4.0, Page 30, First Paragraph, Last Sentence

We recommend replacing "populations" with "receptors."

25) Section 4.1.1, Page 30, Second Sentence

We recommend changing "low qualitative risk" to "*low estimated risk.*"

26) Section 4.1.1, Table 4, Page 31

We suggest that the "Reason for Risk" column heading be replaced with "Basis for Risk Determination."

27) Section 4.1.2.1, Page 32, Fifth Sentence

We recommend replacing "accurate" with "balanced."

28) Section 4.1.2.2.1, Page 32, First Paragraph

It is stated that the future residential scenario assumes the site remains under industrial control for at least 30 or 100 years. It would be more appropriate to state that the scenario assumes the site remains under US Navy, or US DOE control for either of these time periods.

29) Section 4.1.2.4, Table 5, Pages 35 through 40

The portions of the table addressing the NRF-11 Tile Drain Field, the NRF-17 S1W Retention Basins, and the NRF-80 A1W/S1W Radioactive Line Near BB19 should be footnoted to indicate that an unacceptable risk is presumed to exist at these sites based on process knowledge and sampling results from downstream units.

30) Section 4.3, Page 43, First Complete Paragraph

More explanation is needed for risk management decisions which eliminated non-radiological COCs.

31) Section 4.3, Page 43, Third Full Paragraph

- a)** This discussion should include the tile drain field portion of NRF-11.
- b)** The discussion should explain that the agencies consider it likely that contamination above RBCs exist at these sites. See rationale presented in comment # 16.

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32) Section 4.4, Page 45

Please provide more discussion as to why the hydrogeologic study concluded that the NRF has had a minimal impact on the aquifer. For example, the data indicate elevated levels of chromium, tritium, and various salts exist in the vicinity of NRF, and the ROD text indicates that none of the concentrations approach MCLs. However, also of significance is that there appears to be no increasing trends based on periodic water quality sampling. In addition, the NRF has drilled and constructed a downgradient monitoring well network that is sufficiently spaced so as to detect contamination emanating from NRF past or current activities.

33) Section 5.1, Page 49, First Paragraph, Last Sentence

Please delete "the possibility exists" and replace with "indirect evidence strongly suggests."

34) Section 5.1, Page 49, Second Paragraph under Section Heading

It is appropriate to incorporate components of 10 CFR 61 (Licensing Requirements for Land Disposal of Radioactive Waste) as remediation goals, as was done in the January 1996 SL-1/Borax Record of Decision. The remediation goals define performance standards for containment in order to inhibit potential exposure for human and environmental receptors and minimize the spread of contamination.

35) Section 10, Page 74, Third Paragraph

- a) The discussion should identify to the reader that all accessible contaminated soils adjacent to the pipe trench were removed during the construction project and replaced with clean soils.
- b) **Fourth Sentence:** Please replace this sentence with *"The remaining risk at NRF-83 is estimated to be low because the presence of the trench prevents exposure to remaining contaminants. Therefore, this site has been designated as a No Further Action site."*

36) Section 10.0, Page 74, Paragraph 4

We suggest that the text include a brief discussion of the estimated risks resulting from the A1W Cooling Tower through surface pathways.

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37) Section 10, Page 74, Paragraph 4, Fourth Sentence

Please see comment # 6 regarding the term "low qualitative risk."

38) Responsiveness Summary, Page 82, Response to Comment # 4, Second Sentence

We suggest that the following be added to the referenced sentence, "because the contaminants of concern tend to adsorb to site soils, and because the low precipitation in this area provides only minimal driving head to move contaminants deeper into soils."

39) Responsiveness Summary, Page 84, Response to Comment # 9, Last Sentence

It would be useful to have an estimate, based on highest detected concentrations, of how long the radionuclides will remain above acceptable risk-based concentrations.

40) Responsiveness Summary, Page 85, Response to comment #11, Fifth Sentence

The text states that the basins are known to have leaked on only one occasion. It is unclear whether the monitoring during the period in which NRF-17 was used was sufficient to detect all leaks, or whether only one leak was investigated and confirmed during the operational period. Please clarify because it would help to define the potential source term.

41) Responsiveness Summary, Page 85, Response to Comment # 12

The purpose of the reference to the *Programmatic Spent Nuclear Fuel Management and the Idaho National Engineering Laboratory Environmental Impact Statement* is unclear. Please explain the pertinence of this reference.

42) Responsiveness Summary, Page 87, Response to Comment # 14, Last Sentence

This sentence could be viewed as somewhat inflammatory. We suggest that it be deleted.

43) Responsiveness Summary, Page 89, Response to Comment # 16

It would be helpful to explain why the 1970's sample data were not of appropriate quality for use in the risk assessment (e.g., no quality control samples were run, or exact sample location is unknown).

44) Responsiveness Summary, Page 90, Response to Comment # 19

- a) Second Paragraph, Last Sentence:** Please add "*across different sites*" to the end of this sentence.
- b) Third Paragraph:** We suggest that this paragraph be re-worded for clarity as follows: "*However, the inhalation of dust, groundwater ingestion, and direct exposure to radionuclide pathways are spatially cumulative. A receptor located at one site breathes air containing particulates which may have come from multiple sites. In the case of groundwater ingestion, it is not possible to determine the location of a hypothetical future well. It must be assumed that a well could be in a location in which it would receive contamination from multiple sites. The direct exposure to radionuclides may also be additive if a receptor is located between two sites and receives exposure from both sites.*"

45) Responsiveness Summary, Page 93, Response to Comment 23, Sixth Sentence

Please replace "impermeable" with "low permeability."

46) Responsiveness Summary, Page 96, Response to Comment 28

- a) Second sentence:** Please delete the comma following "facilities."
- b) Third sentence:** Please hyphenate the word "cost-effective."